



## Corrigendum

# Corrigendum to “Quasi-P-waves at a corrugated interface between two dissimilar monoclinic elastic half-spaces” [Int. J. Solids Struct. 44 (2007) 197–228]

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We have revisited the paper and found that the numerical computations are in error. This is because of incorrect selection of the values of elastic constants  $c_{33}$  and  $c'_{33}$ . After taking the correct values of these constants, all the computational work has been redone. The following values of the elastic parameters are considered.

For monoclinic half-space  $H$  (lithium tantalate):

$$c_{24} = 0.11 \times 10^{11} \text{ N/m}^2, c_{23} = 0.80 \times 10^{11} \text{ N/m}^2, c_{34} = 0, c_{44} = 0.94 \times 10^{11} \text{ N/m}^2, c_{33} = 2.75 \times 10^{11} \text{ N/m}^2, c_{22} = 2.33 \times 10^{11} \text{ N/m}^2, \rho = 7400 \text{ kg/m}^3.$$

For monoclinic half-space  $H'$  (lithium neobate like material):

$$c'_{24} = -0.09 \times 10^{11} \text{ N/m}^2, c'_{23} = 0.75 \times 10^{11} \text{ N/m}^2, c'_{34} = 0, c'_{44} = 1.06 \times 10^{11} \text{ N/m}^2, c'_{33} = 2.45 \times 10^{11} \text{ N/m}^2, c'_{22} = 2.03 \times 10^{11} \text{ N/m}^2, \rho' = 4700 \text{ kg/m}^3, \text{ the corrugation parameter } (pd) \text{ and the frequency parameter } \left(\frac{p\beta}{\omega}\right) \text{ are taken as } pd = 0.000125 \text{ and } \frac{p\beta}{\omega} = 0.01, \text{ whenever not mentioned.}$$

To compute the angles of propagation of reflected qP- and qSV-waves in the medium  $H$ , Eq. (49) of the authors' paper is solved by using *Mathematica*. For a given angle of incidence, there are two positive roots of Eq. (49), say  $q_3$  and  $q_4$  such that  $q_3 > q_4$ . Then, the directions of propagation of the regularly reflected qP- and qSV-waves are, respectively, given by  $\tan^{-1}(q_3)$  and  $\tan^{-1}(q_4)$ . Similarly, to find the directions of propagation of the transmitted qP- and qSV-waves, an equation similar to Eq. (49) is set up for the medium  $H'$  by making corresponding changes to the quantities  $g_0, g_1, g_2, g_3$ , and  $g_4$ , appropriately. The directions of propagation of the regularly transmitted qP- and qSV-waves are, respectively, given by  $\tan^{-1}(q'_3)$  and  $\tan^{-1}(q'_4)$ , where  $q'_3$  and  $q'_4$  are the positive roots of the equation concerning the medium  $H'$  such that  $q'_3 > q'_4$ . The variations of the directions of propagation of the regularly reflected and regularly transmitted waves with the angle of incidence are shown in Fig. 1. We notice that the directions of propagation of regularly reflected and transmitted waves increase with the increase of angle of incidence. It is found that the directions of propagation of reflected qP- and qSV-waves exist only for the angle of incidence lying in the range  $0^\circ < \theta_0 \leq 81^\circ$ , while that of the transmitted qP- and qSV-waves exist for all angles in the range  $0^\circ < \theta_0 \leq 90^\circ$ .

Figs. 2–5 show the variations of the modulus of reflection and transmission coefficients corresponding to the regular and irregular waves with the angle of incidence. It can be observed from these figures that the amplitude ratios of the regular waves are greater than those of the irregular waves. The peaks occurring in the curves II and III in these figures are due to two reasons: (i) there is a change in sign in the amplitude ratios

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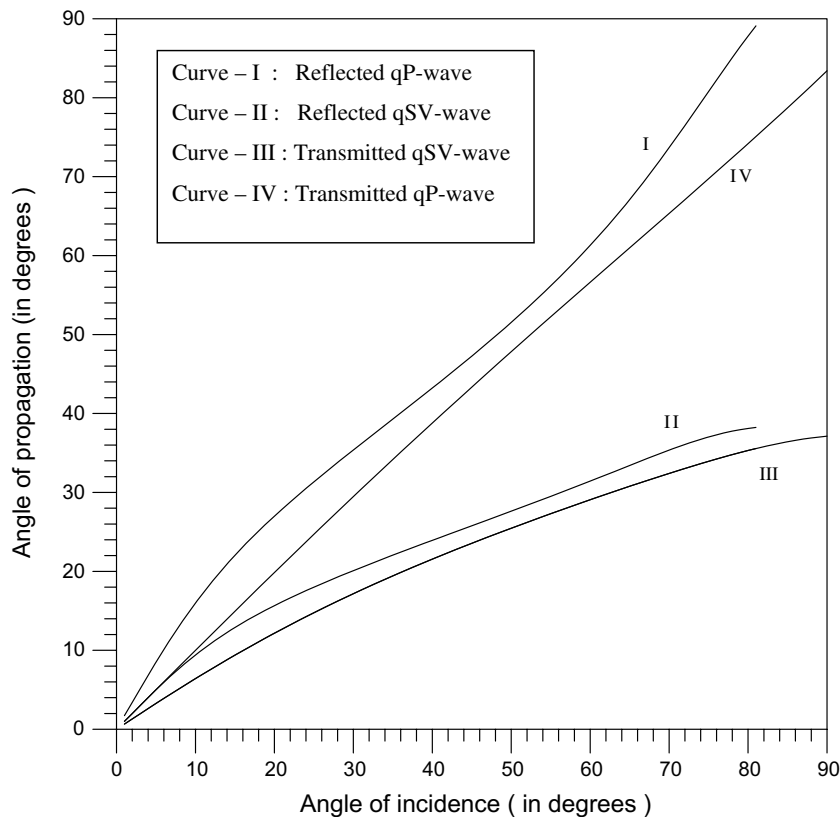


Fig. 1. Variation of the angle of propagation of regularly reflected and transmitted waves with angle of incidence.

at these particular angles of incidence and (ii) they have been depicted after magnifying 10 times to their original values for better visibility.

The variations of the modulus of reflection and transmission coefficients corresponding to the irregularly reflected and irregularly transmitted qP- and qSV-waves with the corrugation parameter  $pd$  are shown in Figs. 6–9 when the angle of incidence is  $25^\circ$ . It is clear from these figures that amplitude ratios corresponding to all the irregular waves increase linearly with increase of the corrugation parameter, but at different rates. However, the amplitude ratios corresponding to regular waves are independent of the corrugation parameter as was expected beforehand.

Figs. 10–13 show the variations of the modulus of reflection and transmission coefficients corresponding to the reflected and transmitted qP- and qSV-waves with the frequency parameter  $\frac{p\beta}{\omega}$ . We see that the modulus of amplitude ratios of regular waves is independent of frequency parameter, while amplitude ratios of irregular waves are influenced by the frequency parameter.

The variations of the reflection and transmission coefficients corresponding to the irregularly reflected and transmitted qP- and qSV-waves with the angle of incidence at different values of the corrugation and frequency parameters are depicted in Figs. 14–21. It is noted that the reflection and transmission coefficients corresponding to the irregularly reflected and irregularly transmitted qP- and qSV-waves increase with increase in the corrugation parameter, while they decrease with increase in the frequency parameter almost at every angle of incidence. Thus, the reflection and transmission coefficients corresponding to the irregular waves are functions of the corrugation parameter, frequency parameter and the angle of incidence.

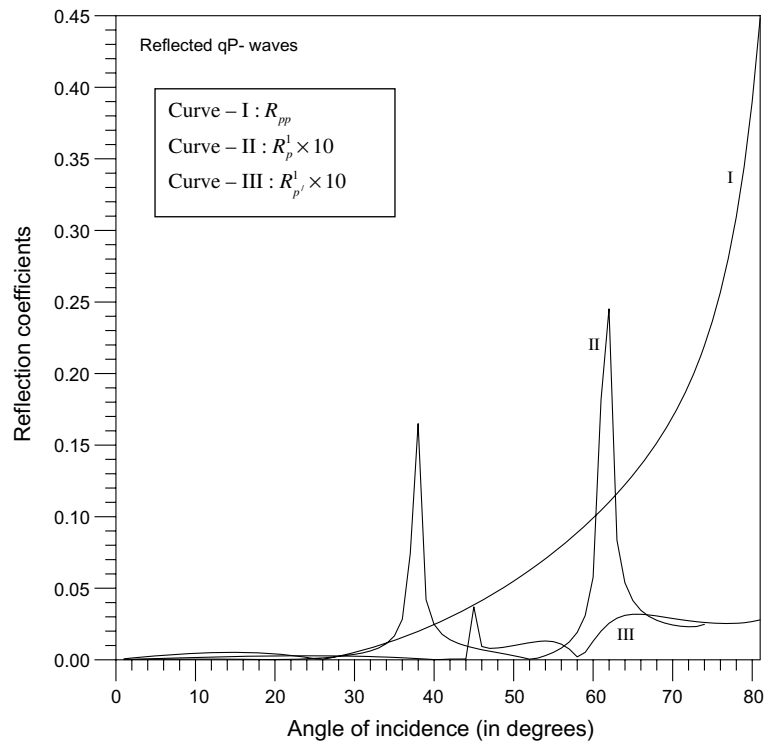


Fig. 2. Variation of modulus of reflection coefficients of reflected qP-waves with angle of incidence.

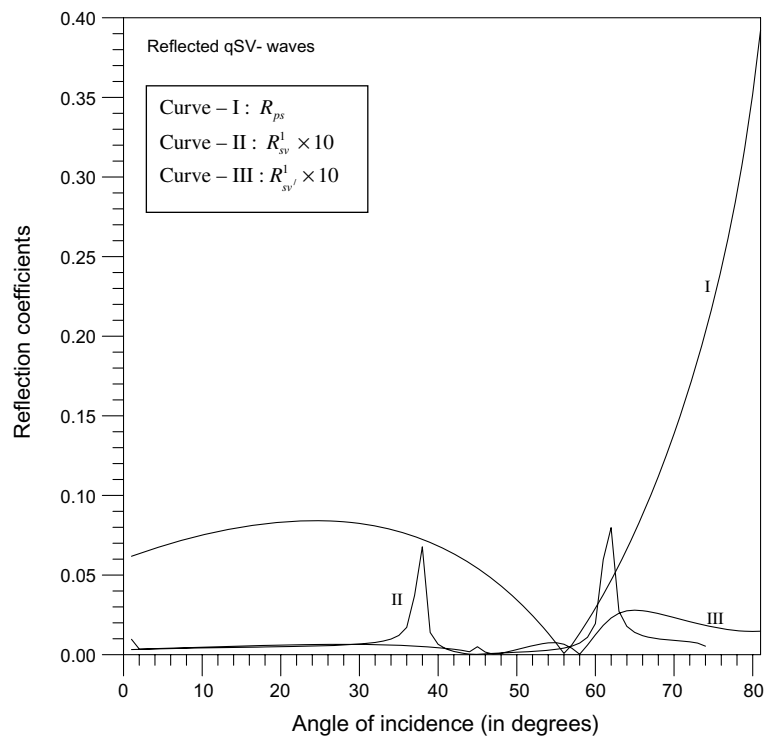


Fig. 3. Variation of modulus of reflection coefficients of reflected qSV- waves with angle of incidence.

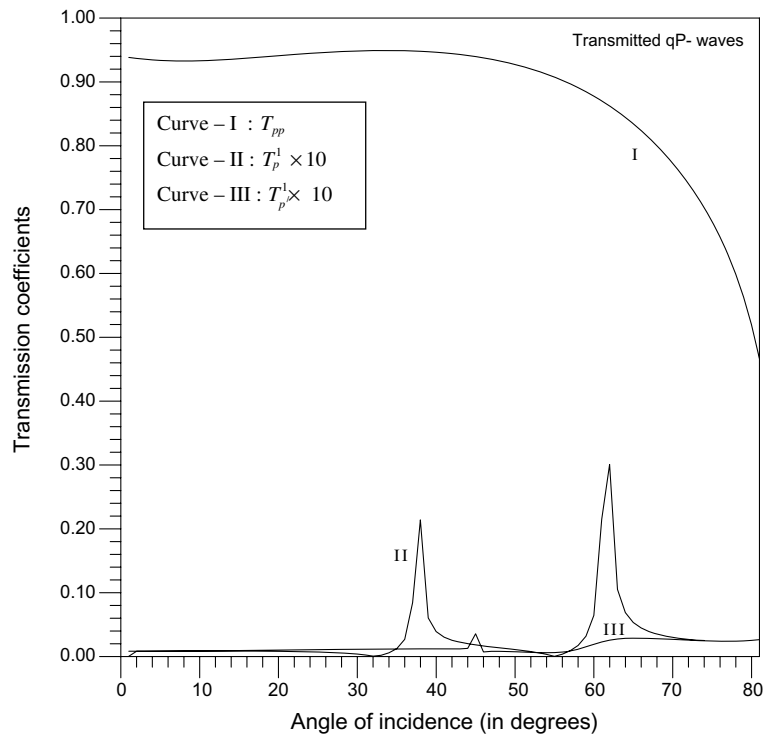


Fig. 4. Variation of modulus of transmission coefficients of transmitted qP-waves with angle of incidence.

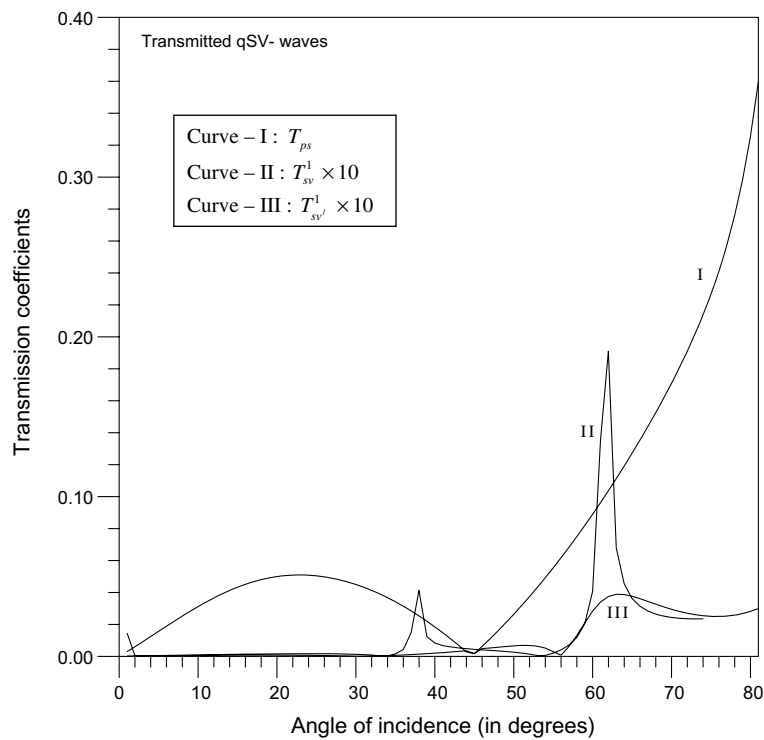


Fig. 5. Variation of modulus of the transmission coefficients of transmitted qSV-waves with angle of incidence.

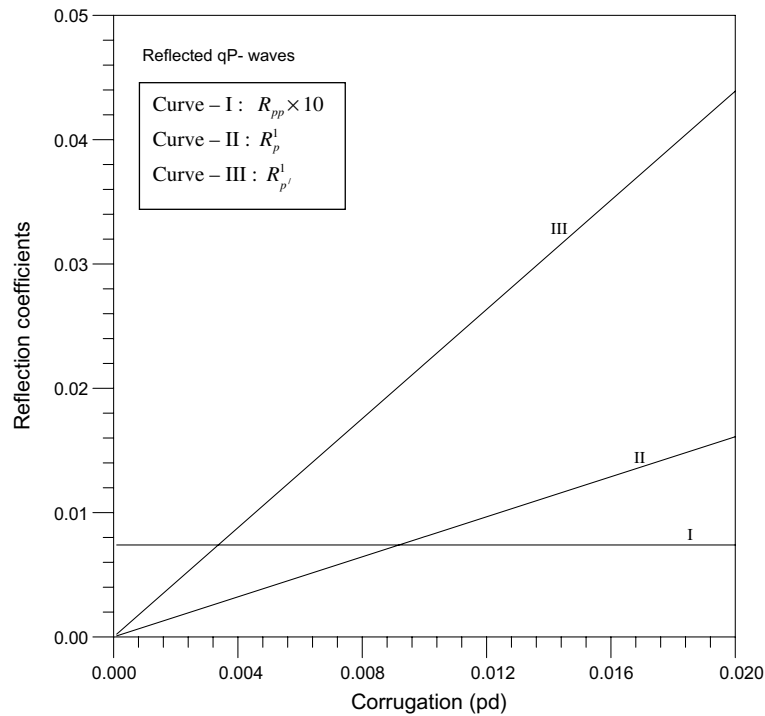


Fig. 6. Variation of modulus of the reflection coefficients of reflected qP- waves with corrugation parameter (pd) when  $\theta_0 = 25^\circ$ .

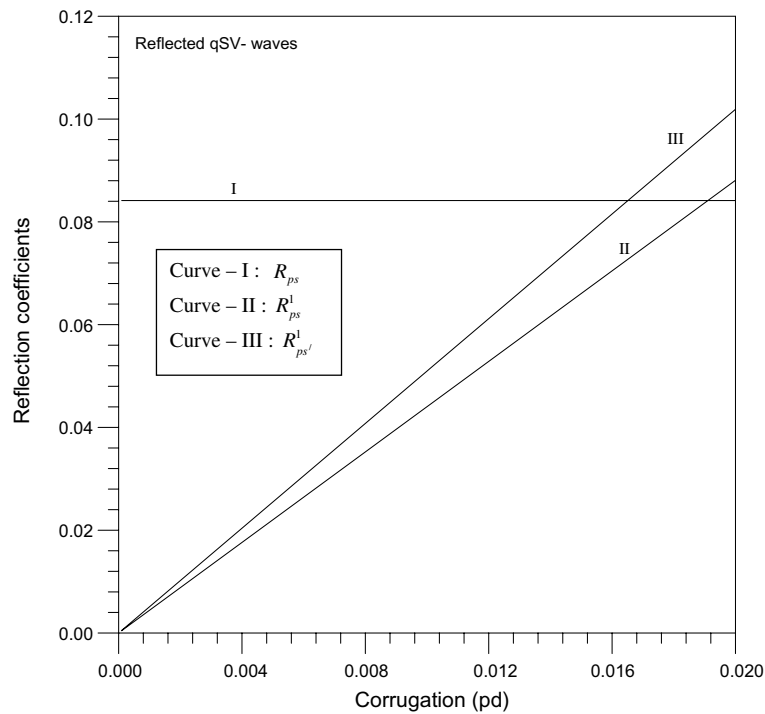


Fig. 7. Variation of modulus of the reflection coefficients of reflected qSV-waves with corrugation parameter (pd) when  $\theta_0 = 25^\circ$ .

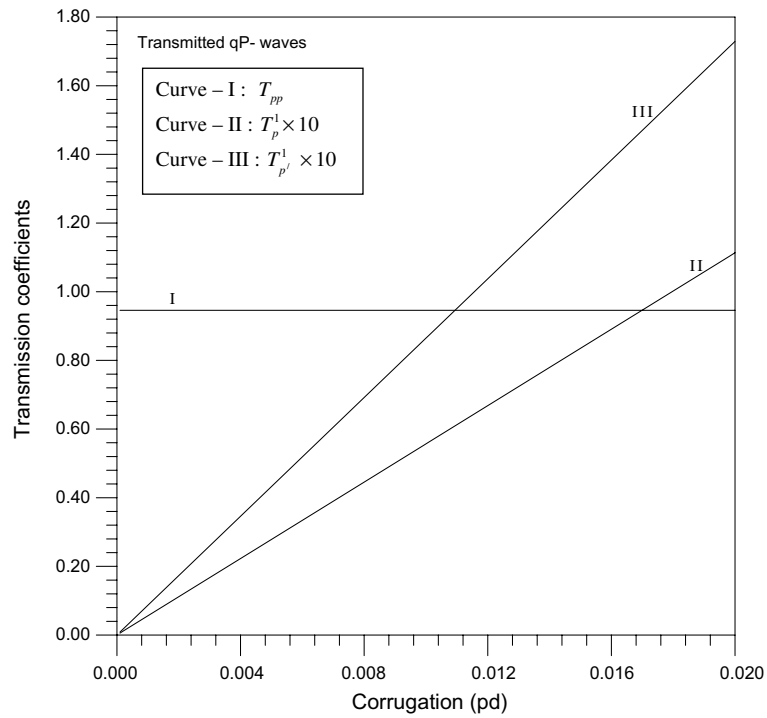


Fig. 8. Variation of modulus of the transmission coefficients of transmitted qP- waves with corrugation parameter (pd) when  $\theta_0 = 25^\circ$ .

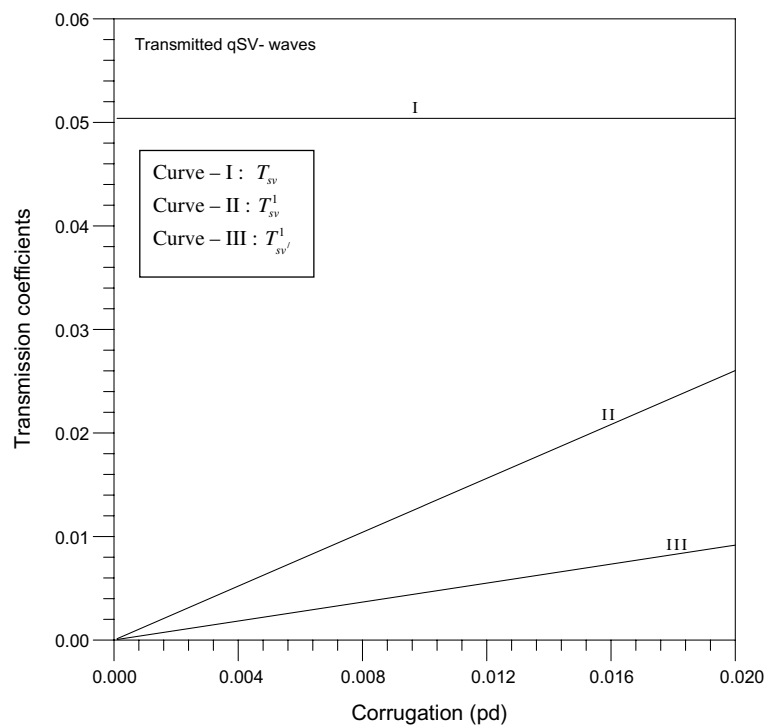


Fig. 9. Variation of modulus of transmission coefficients corresponding to transmitted qSV-waves with corrugation parameter (pd) when  $\theta_0 = 25^\circ$ .

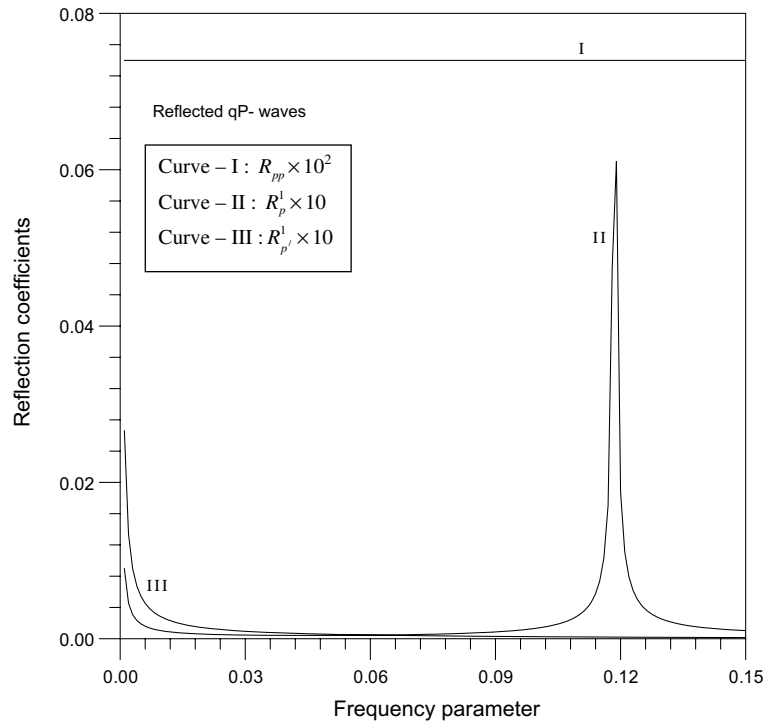


Fig. 10. Variation of modulus of reflection coefficients corresponding to reflected qP- waves with frequency parameter  $(\frac{\rho\beta}{\omega})$  when  $\theta_0 = 25^\circ$ .

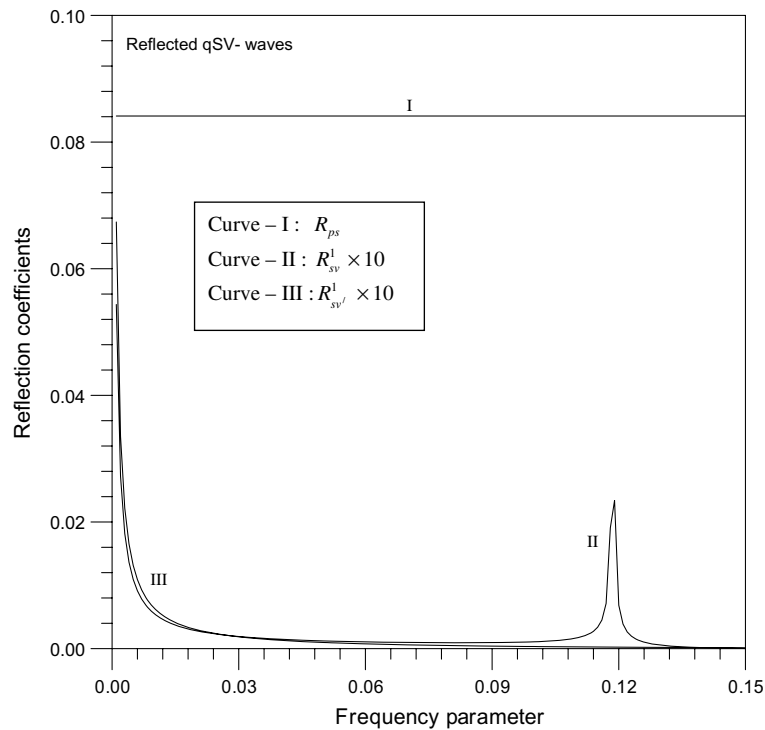


Fig. 11. Variation of modulus of reflection coefficients corresponding to reflected qSV- waves with frequency parameter  $(\frac{\rho\beta}{\omega})$  when  $\theta_0 = 25^\circ$ .

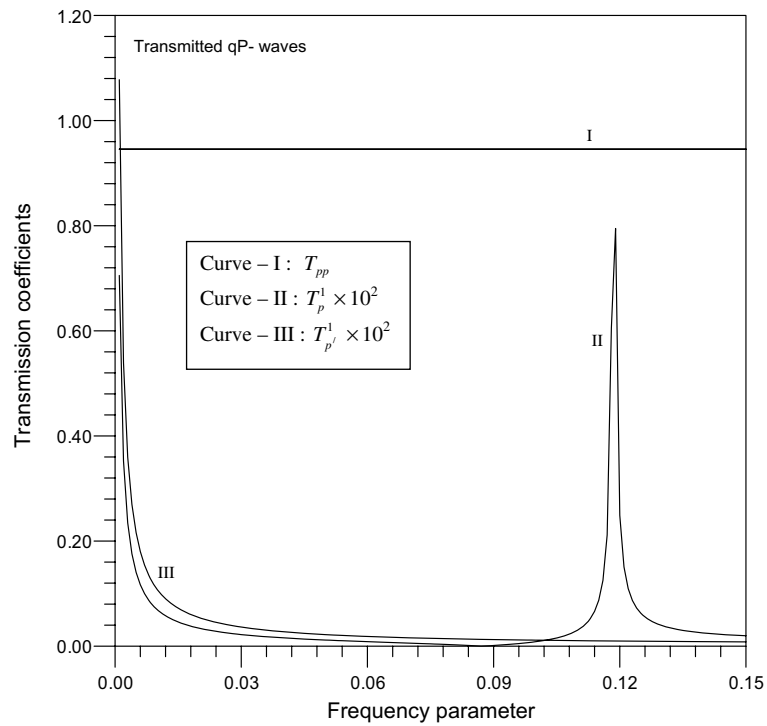


Fig. 12. Variation of modulus of transmission coefficients corresponding to transmitted qP- waves with frequency parameter  $(\frac{v\beta}{\omega})$  when  $\theta_0 = 25^\circ$ .

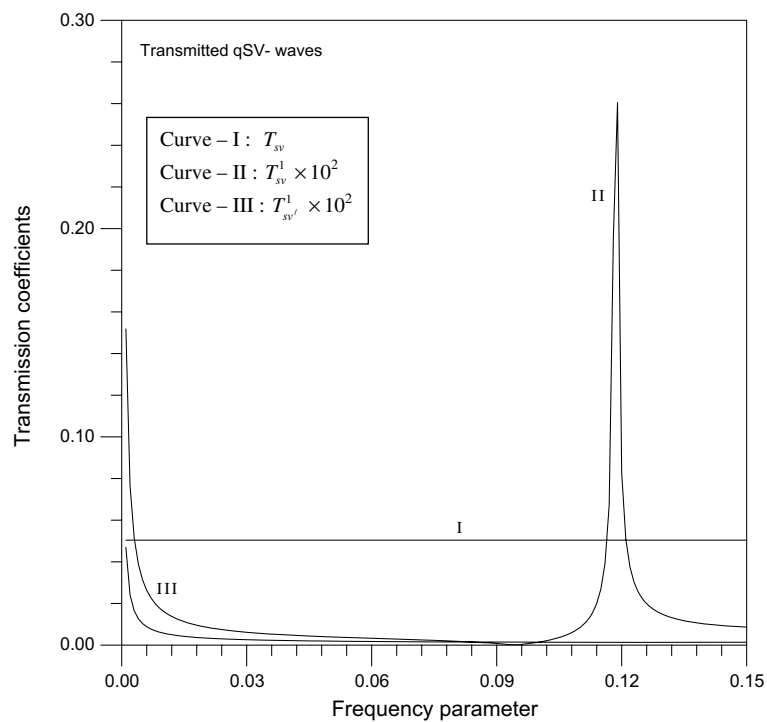


Fig. 13. Variation of modulus of transmission coefficients corresponding to transmitted qSV-waves with frequency parameter  $(\frac{v\beta}{\omega})$  when  $\theta_0 = 25^\circ$ .



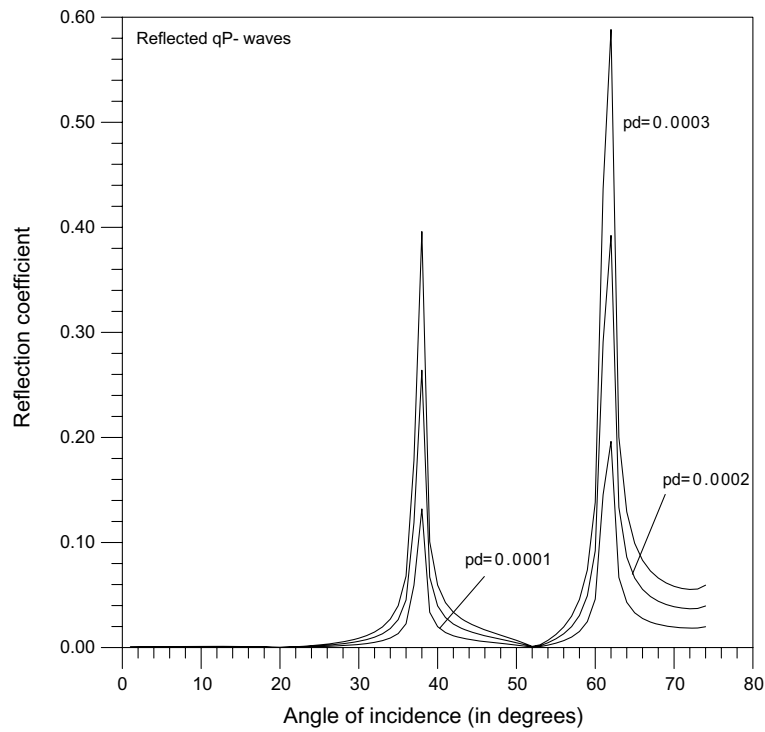


Fig. 14. Variation of modulus of reflection coefficient  $R_p^1 (\times 10)$  of irregularly reflected qP- waves at an angle  $\theta_1$  with angle of incidence for different values of  $pd$ .

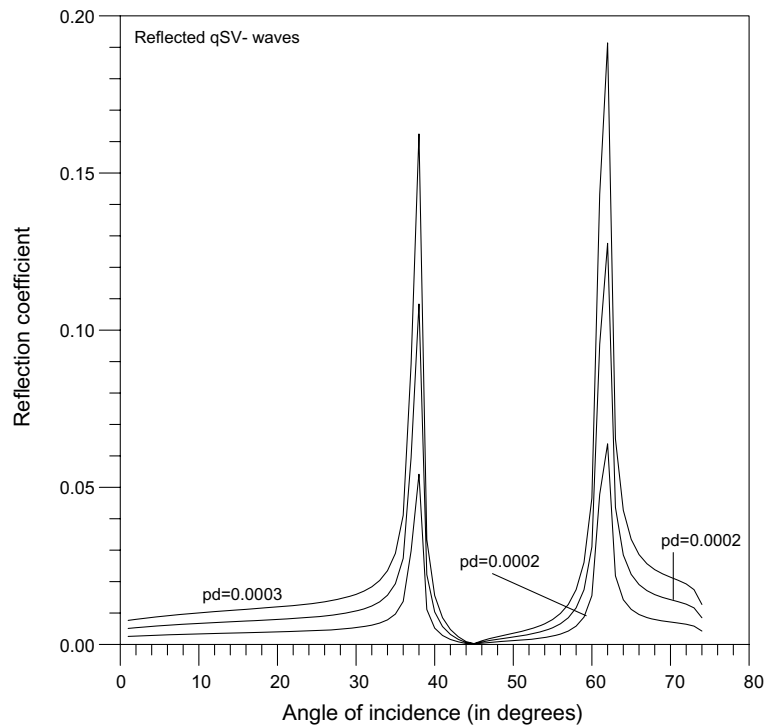


Fig. 15. Variation of modulus of reflection coefficient  $R_{sv}^1 (\times 10)$  of irregularly reflected qSV- wave at an angle  $\phi_1$  with angle of incidence for different values of  $pd$ .

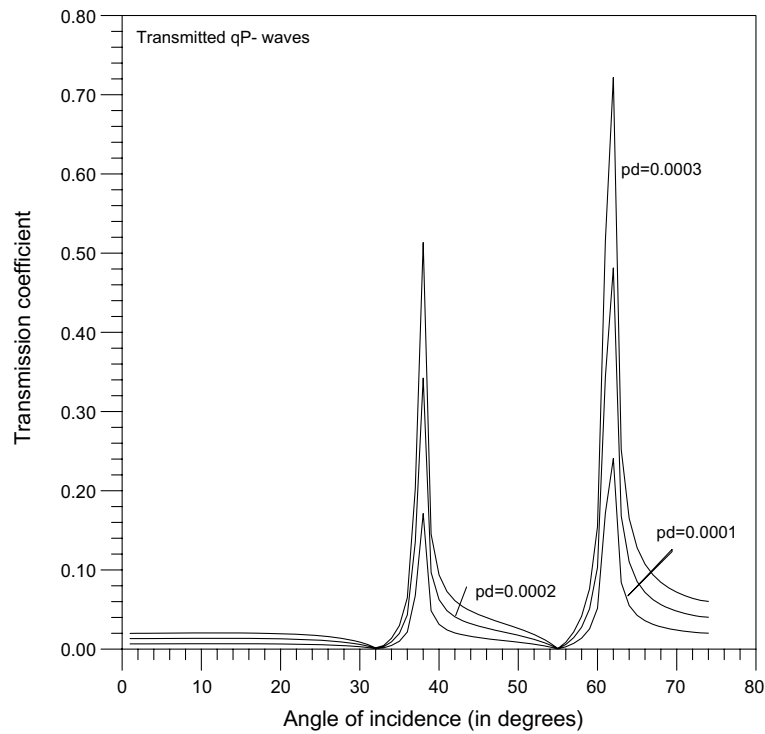


Fig. 16. Variation of modulus of transmission coefficient  $T_p^1$  ( $\times 10$ ) of irregularly transmitted qP- wave at an angle  $\delta_1$  with angle of incidence for different values of  $pd$ .

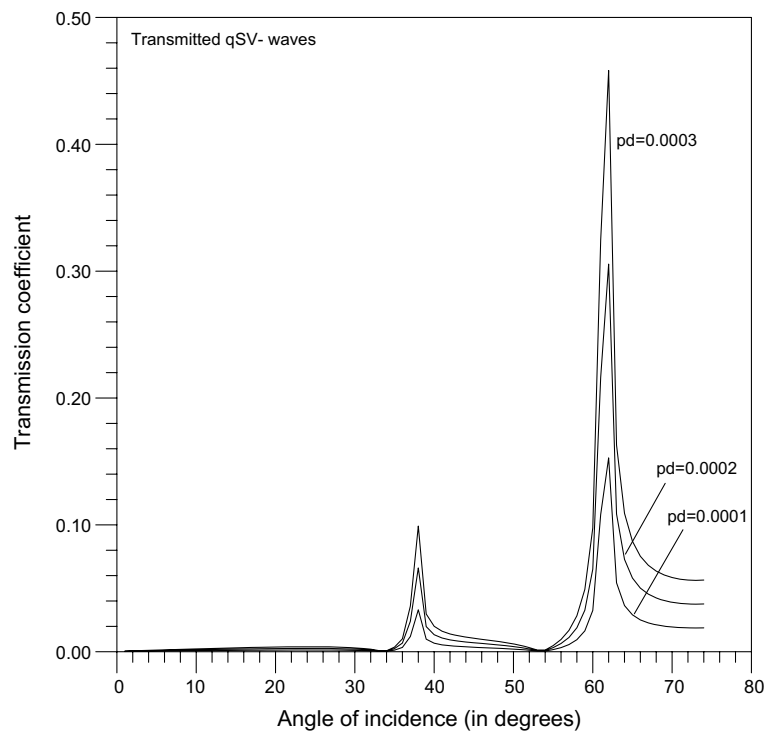


Fig. 17. Variation of modulus of transmission coefficient  $T_{ST}^1$  ( $\times 10$ ) of irregularly transmitted qSV- wave at an angle  $\gamma_1$  with angle of incidence for different values of  $pd$ .

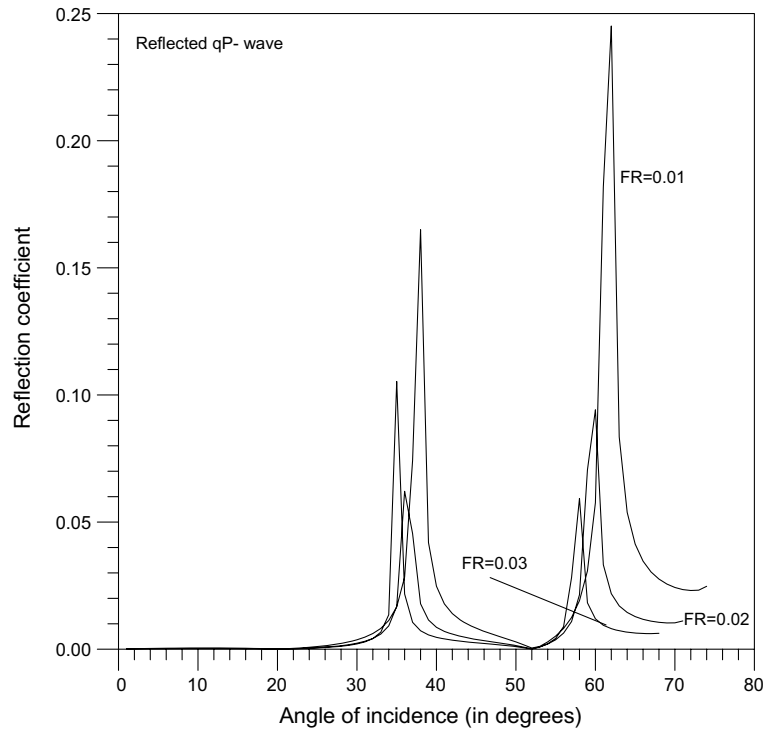


Fig. 18. Variation of modulus of reflection coefficient  $R_p^1$  ( $\times 10$ ) of irregularly reflected qP- waves at an angle  $\theta_1$  with angle of incidence for different values of  $FR$  ( $= \frac{v\beta}{\omega}$ ).

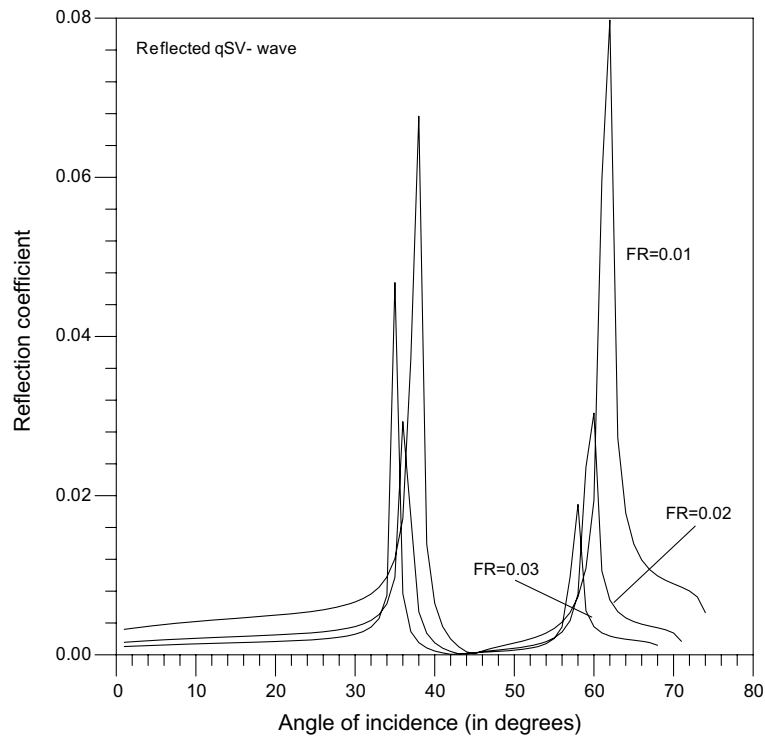


Fig. 19. Variation of modulus of reflection coefficient  $R_{sv}^1$  ( $\times 10$ ) of irregularly reflected qSV- wave at  $\phi_1$  with the angle of incidence for different values of  $FR$  ( $= \frac{v\beta}{\omega}$ ).

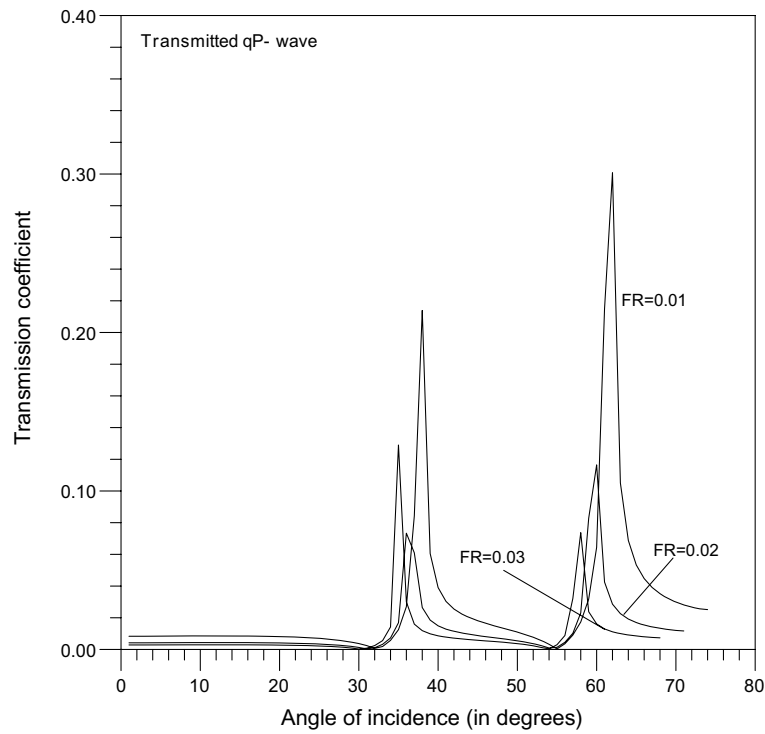


Fig. 20. Variation of modulus of transmission coefficient  $T_p^1$  ( $\times 10$ ) of irregularly transmitted qP- wave at an angle  $\delta_1$  with angle of incidence for different values of FR ( $= \frac{\rho \beta}{\omega}$ ).

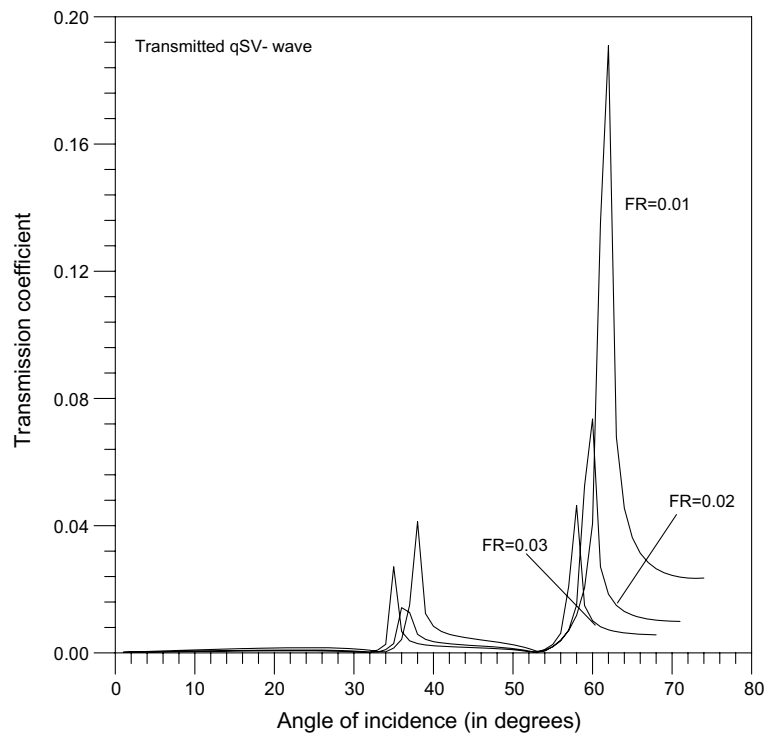


Fig. 21. Variation of modulus of transmission coefficient  $T_{sv}^1$  ( $\times 10$ ) of irregularly transmitted qSV- wave at an angle  $\gamma_1$  with angle of incidence for different values of FR ( $= \frac{\rho \beta}{\omega}$ ).